

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



1.9  
C-7378

CURRENT LITERATURE  
IN  
AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF AGRICULTURAL ENGINEERING

Vol. 7, No. 4.

WASHINGTON, D. C. LIBRARY  
RECEIVED

November, 1937.

Accidents.

Accidents don't happen. By C. M. Seagraves. Western Farm Life. v.39,  
no. 14. July 15, 1937. p. 3, 20.

Agriculture.

Annual report of the board of control for the fiscal year ending June 30,  
1936. Reno, Nevada, University of Nevada. Agricultural experiment  
station, 1937. 36 p. Irrigation projects, p. 8, 25-27.

Farm unity can - and must - grow stronger. By Henry A. Wallace.  
Extension Service Review. v. 8, no. 10. October, 1937. p. 152-  
153, 157. Secretary presents seven cardinal points around which farmers  
can rally in a firm partnership for the benefit of themselves and their  
city neighbors.

Fitting sheep into plains farming practices. By George E. Morton, E.J.  
Maynard, and J.F. Brandon. Fort Collins, Colorado, 1937. 78 p.  
Colorado state college. Colorado experiment station. Bulletin 436.

Making agricultural history. By Charles J. Brand. Fertilizer Review.  
v. 12, no. 5. September-October, 1937. p. 2-3, 15. Seventy-five  
years of the U.S. Department of Agriculture.

North Park cattle production. An economic study. By R.T. Burdick and  
Martin Reinholt. Fort Collins, Colorado, 1937. 87 p. Colorado  
state college. Colorado experiment station. Bulletin 435.

Reports on Italian agriculture. Farm Machinery and Equipment. No. 1845.  
September 15, 1937. p. 18. Farm equipment official tells of rapid  
progress made in reclaiming Pontine marshes. Lack of modern equipment  
noticeable.

Standard of living of farm families in selected Michigan communities. By  
Eben Mumford, J.F. Thaden and Margaret Cawood Spurway. East Lansing,  
Mich., 1937. 45 p. Michigan state college. Agricultural experi-  
ment station. Special bulletin 287.

When physics goes farming. By George R. Harrison. Farmers Digest.  
v. 1, no. 5. September, 1937. p. 22-31. Methods of science go  
to root of farm problems; methods of politics and economics, while  
necessary for temporary adjustments, can never do more than rearrange  
surface aspect of things. One single basic scientific discovery can make  
all of economic solutions to plight of farmer unnecessary. Man with hoe  
should be non-existent hundred years from now.

## Air Conditioning.

Adding moisture to the air in the home in winter. By H.F. McColly.  
Fargo, North Dakota, 1935. 3 p. North Dakota agricultural college.  
Extension division. A.E. no. 11.

Air conditioning blue book; heating, cooling, circulating, cleansing,  
humidifying, de-humidifying. 1937. Chicago, Ill., Domestic  
engineering company, 1937. 539 p.

Air conditioning with well water and refrigeration. Domestic Engineer-  
ing. v. 150, no. 4. October, 1937. p. 72-76, 163-164. Two  
sources of cooling were used in the design of the A.C. system. Article  
tells how difficulties were overcome in installation of heating and  
cooling.

Heating, ventilating and air conditioning; a reference book for engineers,  
architects and contractors. By Louis Allen Harding and Arthur Cutts  
Willard. New York, John Wiley & Sons, Inc., 1937. 963 p.

Taking the mystery out of air conditioning. By Jonas Pendlebury.  
American Home. v. 18, no. 4. September, 1937. p. 20-21, 134.

## Building Construction.

Clay slab and lightweight aggregate make new fabricated panel. Brick &  
Clay Record. v. 91, no. 4. October, 1937. p. 190-191. Poston-  
Springfield develops reinforced wall sections carrying 50 brick faces -  
use pilasters and steel rods to tie-in panels.

Construction costs. The construction industry year book and directory  
service. 10th ed. New York, Engineering News Record, 1937. 133 p.  
Volume of construction, cost of financing, cost of construction, cost  
indexes, unit prices, unit costs, labor rates, material prices, 20  
cities buying guide, products and services directory, equipment and  
materials distributors, producers of basic materials.

Grouted reinforced clay masonry revives "dead" brick industry. Brick  
& Clay Record. v. 91, no. 4. October, 1937. p. 195-200. New  
masonry of brick, steel and poured cement grout eliminates header  
courses - gives greater strength.

Special shapes used in mortarless method. Brick and Clay Record.  
v. 91, no. 4. October, 1937. p. 179. Mortarless brick laying and  
building method has been developed and patented by John M. Pillatzke,  
Minneapolis, Minn. This method requires use of special shape build-  
ing blocks which have round or rectangular grooves along top and bottom.  
Purpose of grooves is to lock securely joints of wall structure of  
blocks, which are placed end to end. Type of groove depends on size  
of unit. Interlocking unit fits in grooves and assists in making  
joints more rigid. Preferred dimensions for full unit varies from size  
of standard brick or tile to size 12 x 12 inches. Bonding material  
used with system is of liquid binder or filler type which can be applied  
with brush.

### Building Materials.

Moist curing of concrete. By H. J. Gilkey. Engineering News-Record. v. 119, no. 16. October 14, 1937. p. 630-633. Data from decade of testing establish proper curing and test conditions on a par with water-cement ratio in affecting concrete strength.

Research program in building materials launched. Architectural Record. v. 82, no. 4. October, 1937. p. 34. Congress recently granted to Commerce Department's Bureau of Standards \$198,000 fund for research into properties and suitability of building materials, with particular reference to their use in low-cost housing. General purpose of work is to furnish to Government agencies, building industry and public, technical information from every available source of engineering properties of building materials as incorporated in structural elements and equipment of a house, with particular reference to low-cost housing. This includes new materials, equipment, and methods of construction as well as those already in use.

### Colorado River.

Colorado River realities. Arizona Producer. v. 16, no. 12. September 1, 1937. p. 7-8. What State Planning Board says about Santa Fe compact, available water, prospects for future development.

### Cotton.

Cotton consumption in the United States. By Charles K. Everett. Annals of American Academy of Political and Social Science. v. 193. September, 1937. p. 34-48.

Effect of artificially drying seed cotton. By Francis L. Gerdes and Charles A. Bennett. Cotton Ginners' Journal. v. 9, no. 1. October, 1937. p. 5-6, 12.

### Cotton Gins and Ginning.

Is it cheaper to gin picked cotton? By Otis T. Weaver. Farmer-Stockman. August 15, 1937. p. 13.

Report on cotton ginning. Cotton and Cotton Oil Press. v. 38, no. 39. September 25, 1937. p. 15. Gives number of bales of cotton ginned from growth of 1937 prior to September 16, 1937, and comparative statistics to corresponding dates in 1936 and 1935.

### Cotton Machinery.

Changes in farm power and equipment. Mechanical cotton picker. By Roman L. Horne and Eugene G. McKibben. Philadelphia, Pennsylvania, 1937. 24 p. Works progress administration National research project on Reemployment opportunities and recent changes in industrial techniques. Studies of changing techniques and employment in agriculture. Report no. 1-2.

Cotton Machinery. (Cont'd)

Concerning mechanical cotton pickers. By Sidney G. McAllister.

Farm Implement News. v. 58, no. 21. October 21, 1937. p. 46.

A mechanical cotton picker whenever South is ready. By S.G. McAllister.

Implement & Tractor. v. 52, no. 22. October 30, 1937. p. 20.

Points out that a number of mechanical cotton picker designs are now in the experimental stage, and that some are near point where they can be put in commercial manufacture. Harvester Company has mechanical picker in experimental tests near Clarksdale, Mississippi at present time, and at least two other pickers are being tested in the South this season.

New picker ignores green bolls. Cotton and Cotton Oil Press. v. 38, no. 33. August 14, 1937. p. 18.

Invented by Charles White, of Moline, Illinois. New picker has electric eye - really a photo electric cell - that detects ripe boll. Machine is said to have such perfect adjustment that light cast by green boll is absorbed, machine refusing to work. When boll is white, however, light is reflected and electric eye signals an electric hand to "pick that cotton." "Hands" are moving belts studded with electric teeth that pull fiber out of ripe boll and carry it to container.

Dams.

Colonel Bailey's Red River dams. By Frederick W. Cron. Military Engineer. v. 29, no. 168. November-December, 1937. p. 421-424.

Comparison of Ruby dam designs. By Lars Jorgensen. Engineering News-Record. v. 119, no. 16. October 14, 1937. p. 633-634. Choice of an arch type as compared to gravity section has many advantages at Skagit River site.

Design of rock-fill dams. By J.D. Galloway. Proceedings of American Society of Civil Engineers. v. 63, no. 8. October, 1937. Part 1. p. 1453-1474. Term is defined, and short history given of origin and evolution of type, together with description of some of important dams that have been built. Major elements of rock-fill dam include foundation, nature of rock of which dam is constructed, dimensions of loose rock-fill, settlement, impervious element on water face, intermediate rubble cushion, and expansion joints. Limiting conditions under which such dams should be built are considered.

Foundation of earth dam fails. Engineering News-Record. v. 119, no. 14. September 30, 1937. p. 532, 535. All indications point to foundation weakness as cause of failure of Marshall Creek dam in Kansas.

Instructions for design and construction of small dams. By L.C. Tschudy and John G. Sutton. Public Works. v. 68, no. 8. August, 1937. p. 21-24. These instructions cover design and construction of dams suitable for Civilian Conservation Corps work in North Dakota, and data

Dams. (Cont'd)

relating to run-off, spillway capacity, etc., should be used cautiously for work in other states. References are to dams not exceeding following average heights above stream beds; earth dams, 20 feet; rubble masonry dams, 10 feet; timber crib dams, 8 feet. Dams described are intended primarily to store water for flood control and water conservation purposes, and to raise water table in bottom lands. No provisions have been made for draining reservoirs.

Parker dam takes form as Colorado aqueduct construction speeds toward close. Explosives Engineer. v. 15, no. 9, September, 1937. p. 263-273, 283.

Quabbin dike built by hydraulic fill methods. By Stanley M. Dore. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1322-1339. Thorough investigation of materials available for earth dam construction furnish not only proper information by which to decide type, dimensions, and cost of earth dam to be built, but they furnish sufficient data to enable contractors to bid intelligently. Such bidding tends toward more economical and satisfactory construction. Proper supervision of construction of full hydraulic fill dam is of primary importance. Engineer strives to have structure built safely and economically, at same time securing best quality, materials available and difficulty of securing and placing them being carefully considered. Control of construction operations by engineer to obtain satisfactory results is influenced to large extent by laboratory investigations and tests of samples from borrow-pits and from shoulders and core of dam. Design of hydraulic-fill dam and supervision of construction, are influenced considerably by rate of consolidation of core material that will occur during and after sulicing operations. As far as is known there is no existing method of computing this rate of consolidation during construction, other than semi-empirical method presented herein which was developed from data accumulated on Quabbin Dike. This method may be used for estimating core consolidation on another project when certain laboratory test data pertaining to that project are available.

Selection of materials for rolled-fill earth dams: Discussion: By Charles H. Lee. Proceedings of American Society of Civil Engineers. v. 63, no. 8. October, 1937. Part 1. p. 1557-1564.

Drainage.

Members of joint state federal basin committees. National resources committee. Water resources committee, 1937. 81 p. Drainage basin study. Revision 1.

Status of land drainage in the United States. By John G. Sutton. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 455-457.

Report of the Interstate committee on the Red River of the North drainage basin. St. Paul, Minn., 1936. 124 p.

## Electric Services, Rural

Michigan plans new rural electric bill. . . . Electrical World. v. 108, no. 13. . . . September 25, 1937. p. 61-62. . . . New program, as now being considered, would provide: 1. Public Utilities Commission jurisdiction over extension of power lines by private and co-operative rural electrification projects. 2. Permission for two or more municipalities to combine in organizing power districts to provide cheap electricity to residents. 3. Authority for municipalities to issue itself liquidating bonds against municipal utilities properties, but not against other resources of municipalities.

Rural extensions increase. . . . Electrical World. v. 108, no. 15. October 9, 1937. p. 89-90. Utilities adding 200,000 customers on 41,000 miles of new lines in 1937. Construction 28 percent above 1936. Trend is toward longer spans.

## Electric Wiring.

Rural line program combining economy with adequacy. By R.H. Halpenny. Electrical Journal. v. 34, no. 10. October, 1937. p. 408-411. An isolated, irrigated valley in California presented opportunity for development of an interesting electrification program. Thorough survey of anticipated loads preceded laying of plans to secure greatest coverage with fewest miles of line. Modification of regular line construction for long spans and light duty resulted in lines of sound construction but moderate in cost.

So you're going to get electricity. By Frank J.G. Duck. Electrical Ruralist. v. 1, no. 6. October, 1937. p. 4-5, 16. Discusses adequate wiring of your farm home and building.

## Electricity in the Home.

Ranges and water heaters double domestic usage. By F.C. Womack. Electrical World. v. 108, no. 13. September 25, 1937. p. 50-52, 109. Fifty percent saturation of ranges and refrigerators and 30 percent for water heaters gained by the trial-rental-purchase plan wins low income group.

## Electricity on the Farm.

Educational programs for rural electrification. By Albert V. Krewatch. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 451-452, 454.

Eleventh annual progress report of investigations of the various uses of Electricity for agriculture in the state of Washington. Submitted January 3, 1936 to the Washington committee on the relation of electricity to agriculture by L.J. Smith and Harry L. Garver. 23 p., mimeographed.

Electricity on the Farm. (Cont'd)

Rural electrification. By H.F. McColly. Fargo, North Dakota, 1936. 16 p. North Dakota agricultural college. Extension division. A.E. no. 15. Mimeographed.

Rural electrification in Alabama. Talk before the Alabama Farm Bureau Federation, Auburn, Alabama, November 17, 1936. By William I. Nichols. 8 p. Mimeographed.

Rural electrification in the different countries. By H.J. Hopfen. Monthly bulletin of agricultural science and practice. v. 28, no. 9. September, 1937. p. 349-360. Austria. Belgium. Czechoslovakia. Denmark. France. Germany. Great Britain. Hungary. India. Italy. The Netherlands. New Zealand. Puerto Rico. Sweden. Switzerland. United States of America. U.S.S.R.

Thirteenth annual report to the Committee on the relation of electricity to agriculture by the Director. Chicago, Illinois. 1936. 48 p.

You will use more water. By Lee C. Prickett. Electrical Ruralist. v. 1, no. 6. October, 1937. p. 8, 17. Facts on increase in use of water with electric pressure water systems; suggestions for planning systems.

Engineering.

The engineer and his relation to Government. By Vannevar Bush. General Electric Review. v. 40, no. 10. October, 1937. p. 466-475.

Geology and civil engineering. By William Otis Hotchkiss. Civil Engineering. v. 7, no. 11. November, 1937. p. 760-762. As modern structures continue to increase in over-all dimensions, particularly in height, foundation problems are attaining increased importance. Unfortunately little is known about strength, elasticity or compressibility of rocks which contain clay seams or disintegrated parts, as test samples removed from site indicate only probable behavior of strongest elements. Moreover, three-way stresses of material in its natural state cannot be duplicated in laboratory. Points out need for method of making tests on such rocks and on unconsolidated materials without removing samples. Other instances where fields of geologist and civil engineer overlap are given, together with some basic data on physical properties of rocks.

Next step in engineering education. By E.D. Ayres. Mechanical Engineering. v. 59, no. 9. September, 1937. p. 678-680. basing his recommendations on an investigation carried out at University of Wisconsin, author proposes ways of broadening education of engineering students so as to include more economical, social, and business courses by projecting instruction into period beyond graduation following a four-year curriculum. Proposal recognizes matricula-

## Engineering. (Cont'd)

tion in engineering college and professional recognition coming several years after college as two points in time within which broadened education would be acquired, and suggests organized educational procedure made available as residence instruction at college, correspondence instruction through extension division, and class instruction by same means. List of non-engineering subjects of growing importance to engineers, which might be available under plan suggested, is included.

Social horizons of the engineer. By Harry J. Engel. Civil Engineer. v. 7, no. 11. November, 1937. p. 763-766. Engineering aspects of some current economic problems.

Some engineering beginnings. By Richard Shelton Kirby. Civil Engineering. v. 7, no. 11. November, 1937. p. 735-739. Salient developments in engineering up to the middle of the Eighteenth Century.

## Erosion Control.

Erosion control in the Northeast. Washington, D.C., U.S. Department of Agriculture. Soil conservation service. 1937, n.p.

Farmers can save Nation's soil. By W.A. Steele. Implement & Tractor. v. 52, no. 21. October 16, 1937. p. 22, 38.

Nichols terrace; an improved channel-type terrace for the Southeast. Washington, D.C., 1937. 12 p. U.S. Department of Agriculture. Farmers' bulletin no. 1790.

## Farm Buildings.

Farm and farm home improvement project. Model buildings. H.L. Walster, Director. Fargo, North Dakota, 1937. 19 p. North Dakota. Co-operative extension work in agriculture. A.E. no. 20. (no. 1886, sub-project 4) Mimeographed.

Machine sheds. By H.B. White, L.W. Neubauer and C.H. Christopherson. St. Paul, Minn., 1937. 8 p. University of Minnesota. Agricultural extension division. Special bulletin 115.

Protect machinery in wheat belt. Kansas Farmer. v. 74, no. 43. August 14, 1937. p. 17.

Report of Conference of agricultural engineers for selection of farm building plans for the western states. Held at Hotel Utah, Salt Lake City, Utah, September 1, 2, 3, 1937. 15 p., mimeographed.

## Farm Houses.

Design factors for small farm homes. By H.E. Wichers. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 442. Vast major-

Farmhouses. (Cont'd)

ity of farm homes lag so far behind, in matter of equipment, arrangement and appearance, that it would take several years of persistent effort on part of State Agricultural Colleges and other agencies to bring them up to a reasonable normal.

Farm and farm home improvement project. Belt lacing. H.L. Walster, director. Fargo, North Dakota, 1937. 7 p. North Dakota. Co-operative extension work in agriculture and home economics. A.E. no. 17. (no. 1886, sub-project 3). Mimeographed.

Farm house design for architectural beauty. By Rexford Newcomb. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 443-444. This means: 1. Consideration of site with its questions of exposure to sun, to prevailing winds, and to winter storms; climate - temperature variations, rainfall, etc.; vegetation. Topography, the "lay of the land" largely determines type of architecture that should be placed upon it. 2. Consideration of social pattern, including heredity (racial stock), regional customs, and local or family customs, traditions, religion, etc. 3. Consideration of materials, including indigenous resources, economic factors, availability, appropriateness of forms to environment, possibilities and limitations of stone, brick, adobe, timber, etc. 4. Consideration of utilities - water, light, heat, insulation, power, etc. Best advice that can be given farm owner is to study existing work to discover wherein it is adapted to or appropriate for particular situation in which he wishes to build. Select that type that appears "at home" in community, or in communities of similar topography, climate, or floral background, and at same time is capable of expressing plan called forth by type of social pattern to be lived in house. But any attitude that approaches archaeological copying or perpetuation of past forms that have no utilitarian significance in our day or time should be avoided. Nothing which is not completely expressive of life of family or community for which house is destined should be tolerated. Architecture must grow from inside out; must, above all, express life of its time and place. It is not something that can be tacked on after structure is planned and formed.

Farm Income.

Farm income and business recovery. Farm Implement News. v. 58, no. 20. October 7, 1937. p. 38. One of outstanding business developments of the year is marked increase that has occurred in actual and prospective purchasing power of farm population. Prospective farm income with purchasing power within one percent of 1929 figure and three percent above average for few years immediately preceding depression, together with sharp reductions in debt, interest charges and taxes, would seem to indicate that agricultural recovery has progressed to point where farm population can once more demand and consume its normal share of country's industrial output.

Farm Income. (Cont'd.)

Income of farmer seen directing use of electricity to production.

Electrical World. v. 108, no. 12. September 18, 1937. p.6.

Committee on Relation of Electricity to Agriculture in recent study finds farm electrification essentially a matter of house use.

Engineering analysis made of 140 Wisconsin and 39 selected farms.

Increase in farm income first eight months. Farm Implement News.

v. 58, no. 20. October 7, 1937. p. 18. Farmers' cash income

for August is officially placed at \$771,000,000, compared with

\$646,000,000 in August, 1936. Total for first eight months of year

is \$5,335,000,000 compared with \$4,674,000,000 in corresponding

period of last year. January-August income consisted of \$5,009,000,000

from sales of products and \$346,000,000 government payments, \$11,000,000

of which were disbursed under first farm act and remainder under con-

servation act. In first eight months of last year receipts from farm

marketings were \$4,470,000,000, and from government payments \$204,000,000.

Farm Machinery and Equipment.

"Combining" of farm operations saves labor and time. Better Farm Equip-  
ment and Methods. v. 10, no. 2. October, 1937. p. 4-5. Effi-

ciency of modern tractor enlarges demand for combines. Augmented  
also by increased acreage of soy beans and other legumes.

Comments on cover-crop disks interspersed with a little California pride.

By F. Hal Higgins. Farm Implement News. v. 58, no. 18.

September 9, 1937. p. 30-31.

Farm machinery problems in erosion control. By G.E. Ryerson. Agricul-  
tural Engineering. v. 18, no. 10. October, 1937. p. 449-450.

Importance of problem cannot be overemphasized, and can be fully realized  
only when we consider importance of erosion-control work now being  
carried on, and necessity for more widespread adoption of erosion-con-  
trol measures. Information is now being collected throughout corn belt,  
which will serve as groundwork for further development of solution.

Farm power and machinery. Compiled by Department of  
agricultural engineering. H.L. Walster, director. Fargo, North  
Dakota, 1937. 32 p. North Dakota. Cooperative extension work  
in agriculture and home economics. A.E. no. 16. Mimeographed.

Influence of farm machinery on rural life and industry. By Chris L.  
Christensen. Farm Implement News. v. 58, no. 21. October 21,  
1937. p. 48-49.

Protect the soil, and the farmer's purse. By W.A. Steele. Farm Imple-  
ment News. v. 58, no. 20. October 7, 1937. p. 36-37. Machines  
available enable farmers to carry on their own soil conservation with-  
out big cash outlay.

Farm Machinery and Equipment.

(Cont'd.)

Repairing the two-horse mower. By I. G. Morrisen. Ithaca, N.Y. n.d., 39 p. New York state college of agriculture. Department of agricultural engineering. Mimeographed bulletin no. 361.

Rope making machine and its use. Fargo, North Dakota, 1936. 2 p. North Dakota agricultural college. Extension division. L.E. no. 13. Mimeographed.

State of the industry. By Harry G. Davis. Farm Implement News. v. 58, no. 21. October 21, 1937. p. 43-45.

State of the industry. By Harry G. Davis. Implement and Tractor. v. 52, no. 22. October 30, 1937. p. 12-13, 34.

Farm Mechanics.

Handy ideas on the farm. By I.W. Dickerson. Western Farm Life. v. 39, no. 14. July 15, 1937. p. 18. Home-made suggestions for saving time, money and labor on odd tasks.

Farm Power.

Horsepower on the farm. By C.W. Duppstadt. Pennsylvania Farmer. v. 117, no. 3. July 31, 1937. p. 5, 14.

Feed Grinders and Grinding.

Design and performance of small automatic hammer mill. By Andy T. Hendrix. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 445-447, 450. Recognizing definite, unsatisfied need for a feed grinder to operate on one horsepower or less, and to have certain other desirable characteristics, study of desirable and possible design and operating characteristics was undertaken in agricultural engineering department of University of Tennessee in cooperation with TVA. Object of Tests: Using two mills described following factors were studied: 1. Effect of fan on mill capacity and on power requirements. 2. Effect of mill speed on grinding efficiency and on fineness. 3. Effect of number of hammers on efficiency, capacity, and fineness. 4. Effect of mill width on capacity, power requirements, and on efficiency. 5. Effect of power input on capacity and efficiency. As result of tests general conclusions on small hammer mills were drawn: 1. For satisfactory operation of small capacity hammer mill, a fan is not necessary, and for general grinding no considerable gain in capacity or efficiency is obtained by use of a fan. 2. Most satisfactory speed for grinding with hammer mill of the type used here, and having 10-inch swing, is about 3750 rpm. 3. Mill 4 inches is preferable to mill 2 inches wide when using either 1 1/2-hp or 1 hp motor, because of more satisfactory operation, greater mechanical stability, and better accessibility. 4. Finer grinding is obtained for given material and conditions with finer screen, higher speed, and greater number of hammer. 5. To be satisfactory, any small grinder must be at least semi-automatic in operation.

### Fencing.

Electric fence accidents. By Frank L. Short. California Safety News. v. 21, no. 3. September, 1937. p. 6. To prevent possibility of fatal accidents to persons, and to prevent loss of livestock due to contacting electrified fences, use of such fences should be discontinued until such time as further tests and research have been conducted to determine a safe value of current to be used, and proper length of time that potential should be applied to fence without being interrupted.

Fence test progress and fencing problems. Contribution of ASAE Committee on Farm Fence Testing. H.W. Riley, Chairman. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 441-444.

### Fertilizer Placement.

Machine placement of fertilizer for cotton. By H.P. Smith, H.F. Morris, and M.H. Byron. College station, Texas, 1937. 52 p. Texas agricultural experiment station. Bulletin no. 548.

### Fire Protection.

Fires on farms. By Harry E. Roethe. Washington, U.S. Govt. print. off., 1937. 7 p. U.S. Department of Agriculture. Bureau of Chemistry and Soils. Leaflet no. 44.

Rural fire protection in California. By Loren S. Bush. California Cultivator. v. 84, no. 19. September 11, 1937. p. 619, 639.

### Floods and Flood Control.

Army engineers' plan for Connecticut Valley. By Mason J. Young. Civil Engineering. v. 7, no. 11. November, 1937. p. 740, 744-750. Describes comprehensive plan for 20 reservoirs and 7 dikes developed by U.S. Engineer Corps for flood control in Connecticut Valley. Plan embraces only best of many reservoir sites and most economical of numerous dike locations, studied by Providence District office. Also discusses in some detail method of computing direct and indirect losses and benefits.

Army engineers' plan for Merrimack Valley and principal Maine Rivers. By Hugh J. Casey. Civil Engineering. v. 7, no. 11, p. 740, 750-754. Deals with studies made by Boston District office of U.S. Engineer Corps for flood control in Merrimack Valley and in basins of principal Maine rivers. This investigation indicated that flood-protection construction is economically justifiable at this time on Merrimack only. For control of this river a system of five reservoirs is recommended, with supplementary river walls and channel improvements.

Flood control in a southern Kansas drainage district. By C.C. Carlson. Public Works. v. 68, no. 8. August, 1937. p. 17.

## Floods and Flood Control.

Flood protection data. Progress report of the Committee:

Discussion: By John C. Hoyt and H.K. Barrows. v. 63, no. 7.  
September, 1937. p. 1422-1424.

Flood protection data. Progress report of the Committee: Discussion.  
By Robert F. Ewald. Proceedings of American Society of Civil  
Engineers. v. 63, no. 8. October, 1937. Part 1. p. 1592-  
1601.

Floods of March 1936. Part 1. New England rivers. Washington.  
U.S. Govt. print. off., 1937. 466 p. U.S. Department of the  
Interior. Geological Survey. Water-supply paper 798.

How forests retard floods. By Charles F. Brooks and Henry L. Baldwin.  
Farmers Digest. v. 1, no. 6. October, 1937. p. 29-33.

National aspects of flood control. A symposium: Discussion. By  
H.K. Barrows, Ivan E. Houk and John E. Field. Proceedings of  
American Society of Civil Engineers. v. 63, no. 7. September,  
1937. p. 1400-1404.

National aspects of flood control. A symposium: Discussion. By  
C.S. Jarvis and Joseph Jacobs. Proceedings of American Society  
of Civil Engineers. v. 63, no. 8. October, 1937. Part 1,  
p. 1615-1620.

No more floods for Fitchburg. Engineering News-Record. v. 119,  
no. 15. October, 1937. p. 589-593. Protected by extensive  
channel improvements on five-mile reach of North Nashua River.

Water resources committee recommendations for New England. By H.K.  
Barrows. Civil Engineering. v. 7, no. 11. November, 1937.  
p. 740-744. Outlines recommendations of Water Resources Committee  
for New England as a whole, compares them with plans of U.S.  
Engineer Corps for Connecticut and Merrimack basins, and comments  
upon some of features of compacts made by New Hampshire, Vermont,  
Massachusetts and Connecticut for distribution of costs on inter-  
state projects.

## Floors.

Test of precast concrete floor units. By Addison F. Holmes and  
Herman C. Protze, Jr. Engineering News-Record. v. 119, no. 13.  
September 23, 1937. p. 507-508. Investigation at M.I.T. produces  
new data on shear resistance, strength and absorption of blocks  
used in so-called unit-and-joist floor system.

## Flow of Water and Gases.

Crest lengths classify discharge. By Robert Abbott. Engineering News-  
Record. v. 119, no. 15. October, 1937. p. 594-595. Classifies un-  
submerged flow over sharp-edged rectangular weirs according to crest  
length by plotting results from experiments on eleven such weirs.

Flow of Water and Gases. (Cont'd)

Flow characteristics in elbow draft tubes: Discussion. By Ellery R. Fosdick. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1392-1399.

Flow characteristics in elbow draft-tubes: Discussion. Proceedings of American Society of Civil Engineers. v. 63, no. 8. October, 1937. Part 1. p. 1578-1587.

Flow of water through 6 inch pipe bends. By David L. Yarnell. Washington, D.C., 1937. 117 p. United States Department of Agriculture. Technical Bulletin no. 577.

Measurement of debris-laden stream flow with critical depth flumes. H.G. Wilm, John S. Cotton and H.C. Storey. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1259-1275. Heavy burdens of erosion debris in streams of San Dimas Experimental Forest in California, have been found to cause substantial errors in measurements of discharge at some gaging stations. Stream-flow records are kept at a number of points throughout Experimental forest. Furthermore, there are two sets of triplicate water-sheds, each shed having an area somewhat less than 100 acres, immediately below each of which is located a Parshall flume, a V-notch weir, a small reservoir, and flat-crested weir over dam forming reservoir. Flow from these water-sheds is first measured through either Parshall flumes or V-notch weirs, according to volume of flow. Its debris content can then be measured in reservoir, and clear water can be measured as it passes over flat-crested weir of dam. However, there are numerous other points on water-sheds below which entire dependence is placed on Parshall flumes or V-notch weirs for determination of stream flow. Due to presence of large quantities of eroded material in all heavy flows, results at these points have been somewhat erratic. This was due largely to deposition of debris on level approach to throats of Parshall flumes during falling stages of stream flow, and to filling of weir boxes with silt which soon put V-notch weirs "out of commission."

Rolling theory of water. By K.B. Khushalani. Indian Engineering. v. 102, no. 3. September, 1937. p. 102-105, 108.

Foundations.

Settlement of structures in Europe, and methods of observations. By Charles Terzaghi. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1358-1376. Methods and results of settlement observations on several structures in Europe, selected to illustrate accurately, behavior of structures on various types of compressible ground, are described. Particularly emphasis is given to observations of settlements of buildings on pile foundations, and comparison between settlement of individual piles under load tests with that of entire pile foundation. Form of settlement diagrams with ground conditions and loadings is recommended as pattern to be followed.

### Foundations. (Cont'd)

Instruments and bench-marks used for settlement observations will suggest themselves to engineers. However, such methods should permit observations of very small settlements as they are valuable in computing future settlements. Observations are result of studies extending over 10-year period.

Some data in regard to foundations in New Orleans and vicinity.

Collected and compiled by the Soil and Foundation society as requested by Louisiana engineering society. A project of the Works progress administration of Louisiana. New Orleans, Louisiana, Board of State engineers of Louisiana, 1937. v. 1.

Stability of embankment foundation. By B.K. Hough, jr. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1340-1357. Analyses made in connection with design of two large rock-fill embankments proposed as part of now discontinued Passamaquoddy Tidal Power Project, included certain unusual studies of stress distribution in clay foundations and character of embankment settlement resulting from foundation over-stress. Report of these studies is intended to describe general nature of findings and to draw attention to possible need for extension of analytical methods (which, at present, are chiefly concerned with designing embankments so as to prevent of clay type of foundations) to new methods in which condition of over-stress is accepted for economic reasons, and extent of resulting embankment settlement is computed as basis for cost estimates.

### Frost Protection.

Underlying principles of frost protection. By Irving Krick. California Cultivator. v. 84, no. 20. September 25, 1937. p. 649, 660-661, 664-665.

### Hay Drying.

Machinery simplifies hay dehydrating process. Implement Record. v. 34, no. 10. October, 1937. p. 14-15. In less than an hour, green alfalfa growing in Sacramento Valley is now mowed, loaded, hauled, chopped, dried and cured, milled, bagged, and branded, ready to store or ship as first grade poultry feed.

Recent developments in grass drying. By G.F. Pollitt. Farmers Digest. v. 1, no. 5. September, 1937. p. 1-7.

### Hemp.

Study of hemp (cannibis sativa). By Louis C. Henkel. New York. 1937. 16 p.

### Hotbeds.

Hotbeds for Kansas. By W.B. Balch and F.C. Fenton. Manhattan, Kansas. 1937. 29 p. Kansas state college of agriculture and applied science. Agricultural experiment station. Departments of horticulture and agricultural engineering. Circular 183.

## Houses.

Design value in low-cost housing. Federal Home Loan Bank Review.  
v. 4, no. 1. October, 1937. p. 4.

Example of coordinating technical research in home building. Federal  
Home Loan Bank Review. v. 4, no. 1. October, 1937. p. 15-16.

Federal home building service plan. Washington, D.C., Federal home  
loan bank board, 1937. 67 p.

Ideas for home builders. Extension Service Review. v. 8, no. 10.  
October, 1937. p. 147. Kansas better-homes train visits towns.

## Hydrology.

Application of meteorology to hydrologic problems. By Willis Ray Gregg.  
Military Engineer. v. 29, no. 168. November-December, 1937. p. 425-  
427. Special investigations are being made of relations between  
rainfall and run-off, and between rain-fall and the occurrence of floods.  
In order to bring these improvements about, reorganization of river and  
flood service of Weather Bureau is proceeding along following lines as  
rapidly as funds permit: (1) Establishment of more and better placed  
rainfall stations, especially in head-water regions. (2) Installation  
of adequate network of recording rain gages to enable forecaster to  
know intensity of rainfall. (3) Surveys of amount and condition of  
snow in mountains, from which little information concerning snow is now  
available. (4) Arrangements for more reliable transmission of rainfall  
and river stage reports from substations to district centers. (5) Most  
important feature of reorganization is division of country into eight  
districts, each to be under supervision of hydrologic engineer, with  
suitable staff of trained men.

## Insulation.

Structural insulation board for poultry houses. By H.M. Ward. Agri-  
cultural Engineering. v. 18, no. 10. October, 1937. p. 400.  
Tests were made at University of Minnesota by Frank B. Rowley, professor  
of mechanical engineering, to determine relative or comparative bracing  
strength of structural insulation board 1/2-inch thick, when dry, and  
after being subjected to spray of water for fifteen hours, as compared  
with 8-inch wood shiplap sheathing, which is considered standard con-  
struction. Gives diagrammatic setup for test of 1/2 in. structural in-  
sulation as sheathing and details showing application of structural in-  
sulation in elements of poultry houses.

Sugar cane boards are stronger than wood ones. Science News Letter.  
v. 32, no. 857. September 11, 1937. p. 168. In tests by Depart-  
ment of Civil Engineering of Columbia University, new sheathing board  
proved to be 28 percent stronger than ordinary diagonal wood sheathing  
and 330 percent stronger than horizontal wood sheathing. Material is  
cheaper than wood, and is made of by-product of sugar cane known as  
bagasse. In appearance sheathing boards come in large panels, one  
inch thick, four feet wide, and twelve feet long. They are coated with

Insulation. (Cont'd)

black asphalt layer which prevents penetration of moisture and one side is sprayed with thin aluminum coating. Porous nature of material supplies air spaces which make it resistant to transmission of heat.

Irrigation.

Dust bowl is being tamed. By Francis A. Flood. Farmer-Stockman. July 1, 1937. p. 3, 23.

Fruition of a pioneer's dream. By S.A. Pipes. Farm and Ranch. v. 56, no. 15. August 1, 1937. p. 5, 14.

Irrigation as crop insurance. By Clive C. Bell. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 453-454.

Page finds confidence among irrigators. Engineering News-Record. v. 119, no. 14. September 30, 1937. p. 533. Continuing droughts have made for new appreciation of irrigated land. While crops on projects will break no records this year, they are abundant, and are selling at prices that allow encouraging returns. It is going to be difficult to meet demands for irrigation coming from Montana, eastern Wyoming, western Nebraska and the Dakotas, Mr. Page explains, because low heads of streams in that area preclude obtaining of adequate water supplies.

Plenty of water for the dust bowl. By Pearl Robinson Burns. Farm and Ranch. v. 56, no. 15. August 1, 1937. p. 6, 23.

Problems peculiar to irrigation farming. By O.W. Israelson. Agricultural Engineering. v. 18, no. 10. October, 1937. p. 437-439. Problems peculiar to irrigation farming present a challenge to agricultural engineers; privileges offer adventures in contentment to rural-minded people. Despite number and complexities of problems peculiar to irrigation farming, it is certainly a permanent, substantial, and sound branch of American agriculture. Farmer who has clear title to good productive land, and vested right to ample water with which to irrigate his land, enjoys economic security which contributes to making of best elements in our democracy. This farmer never has complete crop failures due to drought. Year of drought is one in which he must irrigate more intelligently, and indeed more vigorously; and it may be one also in which he will not trade in his last year's automobile, but if he has, along with his good soil and good water supply, a reasonable amount of energy and good judgment he rarely has delinquent taxes despite adversities of changing value of our money; and he is neither a case for Resettlement Administration nor an eligible for Public Works Administration.

Rotary sprinklers and light pipe now used for irrigating potatoes. Market Growers Journal. v. 61, no. 8. October 15, 1937. p. 425.

Utility study sells plan for increased irrigation. By R.R. Choate. Electrical World. v. 108, no. 13. September 25, 1937. p. 49, 105.

### Land Clearing.

Odd tree puller can clear land fast as fifty workers. Popular Mechanics Magazine. v. 68, no. 1. July, 1937. p. 79. Doing work of about fifty laborers using axes, odd machine developed recently cuts a twelve-foot swath through land covered with mesquite, cactus and native trees. It uproots trees and tangled brush, windrowing virgin growth, at about forty cents per acre for fuel, lubrication and labor. With working speed of two miles per hour, it clears fifteen to twenty acres per day. Blade sticking out in front like a huge feeler bends trees over, while snub-nosed "bulldozer" behind hits trees at or below ground level and roots them out.

"Stump wrangling" in British Columbia. By Hamilton M. Laing. Explosives Engineer. v. 15, no. 9. September, 1937. p. 276-277. Photographs.

### Land Utilization.

Land use studies aid district. Idaho Farmer. v. 55, no. 19. September 16, 1937. p. 10. Facts indicate that some form of outside assistance is necessary if human costs of developing cutover lands are to be kept low. Land-clearing projects are recommended to be set up in areas where soil, topography, growing seasons and availability of public services indicate that farming is advisable.

### Lighting.

Light for the farm. N.Y., Edison Electric Institute, 1937. 24 p.

Science of seeing in the home. Australasian Electrical and Radio Times. v. 16, no. 8. September 20, 1937. p. 22-25. Reason for more and better lighting.

### Maps.

Map fields from the air. By William H. Kircher. The Farmer. v. 55, no. 16. July 31, 1937. p. 3, 11. Tells how it is done from 14,000 feet in the air.

### Miscellaneous.

Officials and organizations concerned with wildlife protection, 1937. Compiled by Frank G. Grimos. Washington, D.C. 1937. 15 p. United States Department of agriculture. Miscellaneous publication no. 276.

Who's Who in Engineering; a biographical dictionary of the engineering profession. 1937. Editor, Winfield Scott Downs. 4th ed. New York, Lewis Historical publishing company, inc., 1937. 1565 p.

## Models.

Construction and testing of hydraulic models Muskingum water-shed project: Discussion. By Ralph W. Powell. Proceedings of American Society of Civil Engineers. v. 62, no. 7. September, 1937. p. 1383-1384.

## Motor Fuel.

More miles in new "gas". Popular Mechanics Magazine. v. 68, no. 1. July, 1937. p. 1-3, 151A, 154A. High-power fuel is same secret 100-octane gasoline that army and navy have been testing for two years. It is just about same as ordinary gasoline except that it is of extremely high antiknock value. That single characteristic in the fuel permits engine to extract and use far more of actual power contained in gasoline.

Principles of motor fuel preparation and application. By Alfred W. Nash and Donald A. Howes. New York, John Wiley & Sons, Inc., 1935. 2 v.

Ethiopian trees may be tapped for motor fuel. Science News Letter. v. 32, no. 857. September 11, 1937. p. 174. Italian Fuel Commission is arranging for construction of ivory-nut alcohol distillery and euphorbia gasoline refinery at Agordat, which is the center of ivory-nut production and also has ready access to large forests of candelabrum trees.

## Orchard Heaters.

Limit smoke output of orchard heaters under newly adopted law. California Citrograph. v. 22, no. 10. August, 1937. p. 451. Tolerance of one gram carbon per minute will be cut to one-half gram in 1940, under Los Angeles County ordinance.

Orchard heater investigations as made by University of California. By H.B. Walker. California Citrograph. v. 22, no. 11. September, 1937. p. 494, 534-537. Relates primarily to generally accepted methods of orchard heating where modern types of oil burning heaters are used. Emphasis has been replaced upon control of smokiness and necessity for careful operation of heaters. There is little that is attractive about orchard heating, and chances of developing a "miracle" heater which will be smokeless and foolproof are extremely remote. There is reason to believe that better heaters will be developed, although these should be thoroughly tested for performance before extensive investments are made. University expects to continue its studies of basic principles involved in effective mass orchard heating, not only to improve existing methods but looking toward development of new methods of heat generation and diffusion, which will provide equal or better protection to orchards as multiple oil heater methods now in general use, and in addition provide better thermal efficiency, less smoke and carbon hazards, lower labor requirements, and reasonable capital investments.

### Orchard Heaters. (Cont'd)

Orchard heating report made by University of California investigators.  
By H.B. Walker and W.R. Schoenover. California Citrograph. v. 22,  
no. 10. August, 1937. p. 446, 468.

Planning next winter's orchard heating. By D.J. Whitney. California  
Cultivator. v. 84, no. 20. September 25, 1937. p. 660.

Recommendations on heating equipment. Compiled from studies by Division  
of Agricultural Engineering, University of California. California  
Cultivator. v. 84, no. 20. September 25, 1937. p. 649, 663.

### Paints and Painting.

Give your house a face-lift. By Dorothy Stacey Brown. Better Homes  
and Gardens. v. 15, no. 11. July, 1937. p. 11-13, 40, 51.

Proposed system for classifying house paints. By F.L. Browne. Indus-  
trial and Engineering Chemistry. v. 29, no. 9. September, 1937.  
p. 1018-1026. Multiplicity of kinds of house paint on market without  
systematic classification complicates progress of technology, and makes  
painting and paint maintenance impracticably technical. Proposed  
system of classification is described in detail. Paint formulas are  
first recalculated in terms of proportions of ingredients by volume.  
Paints are then assigned to groups of types according to nature of  
their pigments. Groups are subdivided into types according to con-  
tent of chemically active pigments, white lead and zinc oxide, and  
types are separated into divisions according to content of opaque pig-  
ments, total pigments, and total nonvolatile matter in paint. When  
very opaque pigments like titanium dioxide are used, allowance for  
dilution with transparent pigment is counted with opaque pigments.  
System may be applied to paste paints as well as to prepared paints  
and to enamelized and resin-fortified paints.

### Plows and Plowing.

Efficient fall plowing. By R.H. Chinn. Purdue Agriculturist. v. 32,  
no. 1. October, 1937. p. 2, 13. Suggestions for efficient opera-  
tion in cool weather are as follows: 1. Run engine at proper temper-  
ature with respect to fuel that is being used. 2. See that fuel pre-  
heating unit is adjusted for type of fuel used. 3. Operate tractor  
from three-fourths to full load capacity. 4. Plow at highest speed  
practical (usually from four to four and one-half miles per hour) if  
tractor is mounted on rubber-tired wheels.

Good plows. Farmers Digest. v. 1, no. 5. September, 1937. p.  
57-58.

### Pumps and Pumping.

Irrigation pump tests. Farm Implement News. v. 58, no. 18. Sept. 9,  
1937. p. 35.

Pointers on pumps. By A.C. Tyler. Implement & Tractor. v. 52, no. 20.  
October 2, 1937. p. 26.

Pumps and Pumping. (Cont'd)

Pump testing laboratory at University of California. Power Plant Engineering. v. 41, no. 10. October, 1937. p. 617. Work of laboratory will include: 1. Research in field of deepwell and propeller pumps. 2. Analysis of laboratory and field methods of testing, development of testing standards and calibration of testing instruments. 3. Tests of motors, bearings and auxiliary equipment. 4. Tests of manufacturers' types. 5. Acceptance tests of specific pumps. Initial projects are: Accuracy of methods of measuring water; normal characteristics of new deepwell pumps; friction losses in riser columns; friction in bearings; effect of wear on pump characteristics; pump throat leads; development of pump testing code.

Pumping along the Platte. By Ivan D. Wood. Nebraska Farmer. v. 79, no. 21. October 23, 1937. p. 5, 21. Survey is contemplated by Extension Service of Nebraska College of Agriculture which will not only fix number of pumping installations, but will determine area being watered, kind of equipment being used, and cost per acre-foot per foot of lift.

Rainfall and Runoff.

Forecasting rainfall by means seasonal distribution. By Henry Wenderoth. Civil Engineering. v. 7, no. 11. November, 1937. p. 770-771.

Rainfall intensities and frequencies: Discussion. By C.H. Eiffert. Proceedings of American Society of Civil Engineers. v. 63, no. 7. September, 1937. p. 1390-1391.

Rainfall intensities and frequencies: Discussion. By C.S. Jarvis and A.J. Schafmayer. Proceedings of American Society of Civil Engineers. v. 63, no. 8. October, 1937. Part 1. p. 1569-1577.

Rammed Earth Construction.

Houses of earth. By A.B. Lee. Cercnet. v. 2, no. 2. June 1, 1937. p. 35-39.

Rammed earth for economy. By Ralph L. Patty. Farmers' Digest. v. 1, no. 6. October, 1937. p. 89-93.

Reclamation.

Federal reclamation laws annotated. By Margaret G. Young. Under direction of the legal division Bureau of Reclamation, July 1936. Washington, U.S. Govt. print. off., 1937.

Range conservation and reclamation. By John C. Page. Farmers Digest. v. 1, no. 5. September, 1937. p. 73-74. Conservation of ranges means perpetuation of livestock industry, and irrigation farmer must have livestock industry.

Reclamation. (Cont'd.)

Reclamation as an aid to industrial and agricultural balance: Discussion.  
By Charles P. Williams. Proceedings of American Society of Civil  
Engineers. v. 63, no. 7. September, 1937. p. 1379-1382.

Refrigeration.

Lilienthal talks refrigeration. Progressive Farmer. v. 52, no. 10.  
October, 1937. p. 6. Farmers who have rural electric current may  
use refrigeration both (1) for new sources of farm income and (2)  
for increasing home-grown food supplies, thereby saving money now  
spent for food. Furthermore, in this program farmers use both equip-  
ment now in general use, and also tremendously valuable new equipment  
which TVA is developing for farmer's benefit.

Modern electric and gas refrigeration. By Andrew D. Althouse and Carl  
H. Turnquist. Chicago. Goodheart-Willecox company, inc., 1936.  
858 p.

Refrigeration engineering. By H.J. Macintire. New York, John Wiley  
& Sons, Inc., 1937. 415 p.

Steam-jet refrigeration. By J.C. Bertsch. Ice and Refrigeration.  
v. 93, no. 3. September, 1937. p. 149-151. The condenser.  
The Assembly. The "Multi-Stage System." Overall dimensions and  
comparison of space occupied by different systems.

Refrigerator Lockers.

Cold storage lockers. By W.E. Morris, S.T. Warrington, and R.J. Eggert.  
St. Paul, Minn., 1937. 15 p. University of Minnesota. Agricultural  
extension division. Special bulletin 187.

Ever hear of co-operative community ice boxes? By S.R. Winters. Farm  
and Ranch. v. 56, no. 14. July 15, 1937. p. 7, 13. At present  
time it is estimated that there are 1,500 of these refrigeration con-  
tainers west of the Mississippi.

Survey of cold storage locker plants. Ice and Refrigeration. v. 93,  
no. 4. October, 1937. p. 271-272. Returns from survey of cold  
storage locker plants in Iowa and adjoining States show remarkable  
similarity on some points, and wide variations in others. Operators  
point out some things that those starting in business should not do.

Refrigerators.

Ice well refrigerator. By H.F. McColly. Fargo, North Dakota, 1934.  
rev. 1937. 11 p. North Dakota agricultural college. A.E. no. 9.  
Mimeographed.

Research.

Summary statement of activities of the National research council, 1936-

Research. (Cont'd.)

1937. By Dr. Ludvig Hektoen and Dr. Albert L. Barrows. Reprinted from Science, October 8, 1937, v. 86, no. 2232, p. 315-320.

Rio Grande Valley.

Streamlining the Rio Grande. By L.A. Wilke. Farm and Ranch. v. 56, no. 16. August 15, 1937. p. 4, 13.

Roofs.

Roofing materials for farm buildings. By C.H. Christopherson. St. Paul, Minnesota, 1937. University of Minnesota. Agricultural extension division. Agricultural engineering news letter. no. 67.

Roofs. By David George Bareuther. American Home. v. 18, no. 4. September, 1937. p. 28-29, 101-102.

Sewage and Sewage Disposal.

Municipal and rural sanitation. By Victor M. Ehlers and Ernest W. Steel. 2d ed. New York, McGraw-Hill Book Company, Inc., 1937. 477 p.

Silos.

Crib or snow fence silo. Jersey Bulletin and Dairy World. v. 56, no. 39. September 29, 1937. p. 1390. Crib silos are temporary makeshifts and are only fairly satisfactory substitutes for permanent, upright silos. However, they are cheap, can be moved, and will provide satisfactory silage if properly constructed and filled. Important points to consider are these: Stretch new fencing with wire stretcher or tractor. Place silo on level ground. Cut upper section somewhat shorter than one below it. Splice ends of each section of cribbing securely and turn loose ends out to prevent puncturing paper. Use spring clothes clips to hold paper in place - do not fasten paper in permanent manner - and remove clips as each section is filled. Set cutter to cut fodder short. Keep blower pointing at middle. Tramp silage thoroughly, keeping middle highest. Add water if fodder is somewhat dry. As each section is filled run heavy wire around it, about one foot from bottom, and another wire a foot from top of that section, draw them tight and splice them securely. Height should be greater than diameter of silo.

Farm silo is profitable in many ways. By A.H. Pankow. Dakota Farmer. v. 57, no. 19. September 11, 1937. p. 477.

Progress report. Silo wall treatments. Compiled by Department of agricultural engineering. H.L. Walster, director. Fargo, North Dakota, 1937. 2 p. North Dakota. Cooperative extension work in agriculture and home economics.

### Soils.

Nevada soils; an outline of proposed investigations. By V.E. Spencer.  
Reno, Nevada, 1936. 17 p. University of Nevada. Agricultural  
experiment station. Bulletin no. 144.

### Storage Houses and Cellars.

Storage for root crops. The Farmer. v. 55, no. 17. August 14, 1937.  
p. 12.

### Sugar Beets.

Changes in technology and labor requirements in crop production. Sugar  
beets. By Loring K. Macy, Lloyd E. Arnold, Eugene G. McKibben, and  
Edmund J. Stone. Philadelphia, Pennsylvania, 1937. 48 p. Works  
progress administration. National research project on reemployment  
opportunities and recent changes in industrial techniques. Studies  
of changing techniques and employment in agriculture. Report no. A-1.

### Temperature.

Summer optimum temperatures for poultry. Agricultural Engineering.  
v. 18, no. 10. October, 1937. p. 444.

### Tires.

Pneumatic tractor tires featured at S.A.E. meet. Implement & Tractor.  
v. 52, no. 20. October 2, 1937. p. 12-13, 30.

Positively inspired - in the retrospect. Farm Implement News. v. 58,  
no. 20. October 7, 1937. p. 34-35. First announcement of rubber  
tires for farm tractors was made June 23, 1932.

### Tobacco.

Flue-cured tobacco. By F.R. Darkis, L.F. Dixon, F.A. Wolf and P.M. Gross.  
Industrial and Engineering Chemistry. v. 29, no. 9. September, 1937.  
p. 1030-1039. Chemical analyses of flue-cured tobaccos produced on  
limed and nonlimed soils are presented. Tobaccos were grown under  
various fertilizations for six consecutive growing seasons, during which  
rainfall conditions were widely divergent. Changes in chemical composi-  
tion brought about by use of dolomitic limestone are pointed out. Certain  
postulations are offered to explain manner in which limestone operates to  
effect these changes. Changes in composition induced by liming are detri-  
mental to quality of flue-cured tobaccos. Evidence is given to show  
that adverse weather conditions, or lack of rainfall may accentuate ill  
effects of dolomitic limestone.